



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/605,290 | 09/19/2003 | Fazal U. Syed | 81044518/201-1495 | 2289 |

28395 7590 10/31/2005
BROOKS KUSHMAN P.C./FGTL
1000 TOWN CENTER
22ND FLOOR
SOUTHFIELD, MI 48075-1238

EXAMINER

VANAMAN, FRANK BENNETT

ART UNIT PAPER NUMBER

3618

DATE MAILED: 10/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/605,290

Applicant(s)

SYED ET AL.

Examiner

Frank Vanaman

Art Unit

3618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 8,9,11,18 and 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,10 and 12-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/19/03, 2/3/05, 2/4/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Election/Restrictions

1. Applicant's election, apparently with traverse, of Invention I in the reply filed on August 18, 2005 is acknowledged. The traversal appears to be on the ground(s) that group I should include claim 11, as best understood from applicant's comments.

Applicant has written:

"The listing of the claims in Group I on page 2 of the Office Action should include claim 11 in view of the foregoing amendment to claim 11. Original claim 11 should refer to the "controller" of claim 9 rather than the "method" of claim 9. Claim 9 is a structural [sic] claim, not a method claim."

This is not found persuasive as applicant's arguments do not appear to be commensurate with that which is claimed. As filed claim 11 was written to be dependent upon claim 9, which is directed to apparatus, and was understood by the examiner to be an apparatus claim in view of its dependency and in spite of its preamble.

The original restriction set the apparatus group out as follows:

"Claims 8, 9, 11, 18 and 19, drawn to a vehicle control device, classified in class 180, subclass 65.2"

Applicant has now amended claim 11 to positively recite the apparatus "The controller defined in claim 9..." and it is not at all clear why applicant is urging that claim 11 be considered with Group I, when it appears to be associated with Group II.

As such, claim 11 appears to clearly be an apparatus claim, associated with group II, and is withdrawn from consideration along with claims 8, 9, 18 and 19. Applicant's assertion that "the listing of the claims in Group I on page 2 of the Office Action should include claim 11..." clouds the prosecution.

The requirement is still deemed proper and is therefore made FINAL.

Specification

2. The disclosure is objected to because of the following informalities: in paragraph 0010, line 17, "it's" should be - -its- -; in paragraph 0016, line 20, it appears the "wheels 22" should be - -wheels 20- -.

Appropriate correction is required.

Claim Objections

3. Claim 10 is objected to because of the following informality: in claim 10, line 7, "greater that" should be - -greater than- -. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. Claims 2-6 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claims 2-6, it is not clear what particular further method limitations are being set forth; in claim 10, lines 8 and 10, "the engine" lacks a clear antecedent basis.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4, 7, 14, 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Frank (US 6,116,363). Frank teaches a hybrid vehicle which includes a power unit (engine 14), a plurality of energy storage devices (batteries 28), a transmission (18), a state machine (part of 30) connected at least to a battery state of charge determining device, which machine can control battery charging based on a series of decisions (figure 3), the machine including an off state (line 280), an on state (line 250) and including a region which may be defined as opportunistic (region between lines 280 and 250), the different states being related to a parameter (in this case Depth of Discharge - the inverse of state of charge - note a 0% state of charge corresponds to a 100% depth of discharge) which may include an "off" value (DOD or inverse of SOC corresponding to that along line 280) and a "min" value (DOD or inverse of SOC corresponding to that along line 250), wherein an "on" value may be defined as a value between the off and min values, wherein the state of charge or depth of discharge values are varied based on vehicle speed, and further wherein:

(a) when the machine is in an 'off' state, and the SOC (inverse of DOD) parameter is less than that associated with an 'on' value, the operation of the machine is characterized by being in an opportunistic state and the power unit, if already on, is maintained in an on condition; (b) if the machine is in an 'on' state and the SOC (inverse of DOD) parameter is greater than an on level the machine is characterized by being in an opportunistic state; (c) if the machine is in an opportunistic state (between lines 280 and 250) and the SOC parameter is less than a 'min' value (i.e., DOD is greater than the condition defined by line 250) then the machine is in an 'on' condition; and (d) wherein then the machine is in an opportunistic state and the parameter of SOC is greater than the off level (i.e., DOD is less than the condition defined by line 280) then the machine is in an 'off' state; the reference to Frank teaching that the opportunistic region may be defined by overlapped thresholds or by time delay.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5, 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank. As regards claim 5, the reference to Frank. fails to specifically teach the parameter being a discharge power limit of the battery, however inasmuch as the discharge power limit of a battery and the state of charge may be mathematically related to state of charge or depth of discharge, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ a discharge power limit rather than a state of charge for the purpose of providing more accurate or precise control method. As regards claim 10, the reference to Frank fails to explicitly teach a request to leave the power unit off if already off, or on if already on. Inasmuch as control loops performed by vehicle control systems periodically update the status of control variables (note figure 3), and thus the reading of such variables is performed

Art Unit: 3618

periodically, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the status of the power generation request (either 'on' or 'off') periodically, for example at least at the time of transition of the measured control variable (i.e., the SOC) from one region to another. As regards claim 15, the reference to Frank fails to explicitly teach the use of a 'don't care' request, however it is very well known to use variable flags to indicate the condition of a variable with change of another variable, and as such, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a 'don't care' variable, for example in the form of a 'status unchanged' flag, for the purpose of programming diagnostics.

9. Claims 6, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank in view of Kuang et al. (US 6,603,215). The reference to Frank is discussed above and while teaching the use of different state of charge values associated with different speed ranges fails to teach the modification of the values at which the various machine states are triggered by a change in transmission state, or particularly wherein the transmission is placed in a reverse position. Kuang et al. teach that it is well known to adjust the control of an engine (24) by a controller (46) to charge a battery (36) based on its state of charge, and teaches that a change in the control scheme may be had when the transmission state is changed (step 62). In that a vehicle speed range for each gearing of a transmission is well known and well established, it would have been obvious to one of ordinary skill in the art at the time of the invention to adjust the state of charge values taught by Frank to be adjustable based on vehicle speed by transmission gear or speed ratio, with a selected set of state of charge values associated with each particular speed ratio, for the purpose of saving memory space in the lookup table which determines state of charge or depth of discharge as a function of vehicle speed (i.e., having an entry for each of the transmission's forward and reverse speeds, rather than numerous entries for each possible vehicle speed).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Furutani et al. (US 5,285,862), Frank (US 5,842,534), Severinsky

Art Unit: 3618

et al. (US 6,554,088), Saito et al. (US 6,694,232), Ogata et al. (US 6,739,418), and Takaoka et al. (US 6,781,251) teach vehicle controls of pertinence.

1. Any inquiry specifically concerning this communication or earlier communications from the examiner should be directed to F. Vanaman whose telephone number is 571-272-6701.

Any inquiries of a general nature or relating to the status of this application may be made through either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A response to this action should be mailed to:

Mail Stop _____
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450,

Or faxed to:

PTO Central Fax: 571-273-8300

F. VANAMAN
Primary Examiner
Art Unit 3618

Handwritten signature of F. Vanaman, dated 11/27/03.